Volunteer Lake Assessment Program Individual Lake Reports

LOON POND, GILMANTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,088	**Max. Depth (m):**	13.6	**Flushing Rate (yr^{1})**	0.6
Surface Area (Ac.):	121	**Mean Depth (m):**	7	**P Retention Coef:**	0.69
Shore Length (m):	3,100	**Volume (m^3):**	3,436,000	**Elevation (ft):**	904

TROPHIC CLASSIFICATION

Year	Trophic class
1980	MESOTROPHIC
1996	MESOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

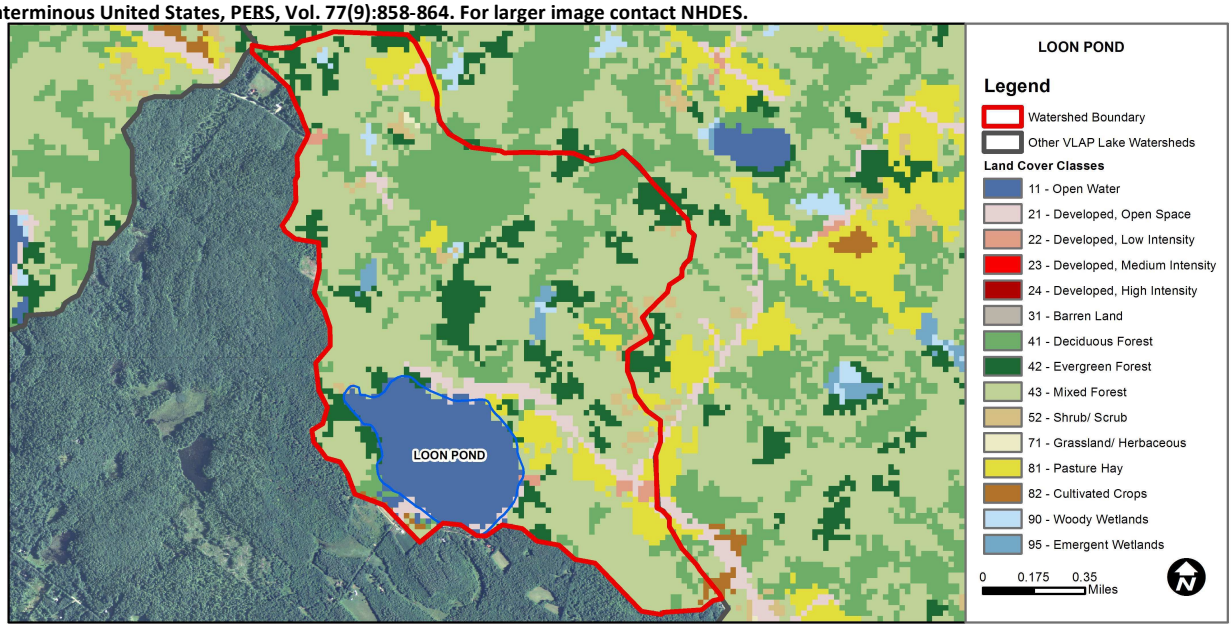
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Very Good	>5 samples and median is < 1/2 threshold.
Primary Contact Recreation	E. coli	No Data	No Data for this parameter.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

LOON LAKE - LOON LAKE BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	11.2	Barren Land	0	Grassland/Herbaceous	0.08
Developed-Open Space	3.24	Deciduous Forest	18.53	Pasture Hay	5.41
Developed-Low Intensity	0.6	Evergreen Forest	10.82	Cultivated Crops	0.31
Developed-Medium Intensity	0	Mixed Forest	47	Woody Wetlands	0.5
Developed-High Intensity	0	Shrub-Scrub	1.65	Emergent Wetlands	0.74

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
LOON POND, GILMANTON, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels spiked slightly in July, but were low in 2012. Historical trend analysis indicates a relatively stable chlorophyll level since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride were elevated at Bertrand Brook and Gardner Cove Inlet due to road salting, which is likely causing the slightly elevated levels in the lake.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were relatively low; however historical trend analysis indicates a significantly increasing (worsening) epilimnetic (upper water layer) phosphorus level. Tributary phosphorus levels were slightly elevated in July due to low flow conditions.
- **TRANSPARENCY:** Transparency levels were consistent throughout the summer, however decreased from that measured in 2010 and 2011. Historical trend analysis indicates a relatively stable transparency since monitoring began.
- **TURBIDITY:** Turbidity levels were low in 2012.
- **PH:** Deep spot pH decreased to lower than desirable levels in the hypolimnion (lower water level).
- **RECOMMENDED ACTIONS:** Discuss with the Town the possibility of implementing a low salt zone on Loon Pond Road, spring cleaning of sand along roadside and cleaning out catch basins which flow into Bertrand Brook and create chloride and sedimentation issues. The increasing phosphorus trend is concerning and efforts should be made by watershed residents to reduce their phosphorus input to the pond. Several educational handouts are available, and DES staff is available to attend an association meeting to assist with educational efforts.

Dissolved Oxygen & Temperature Profile

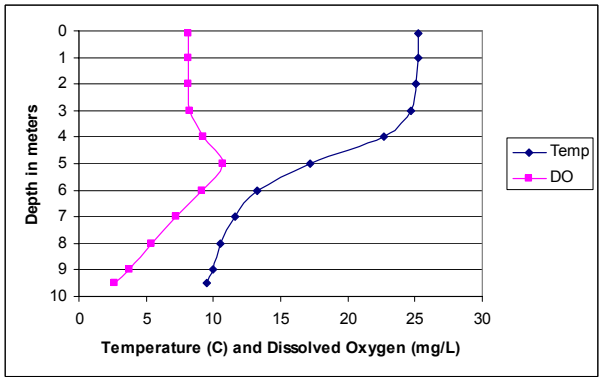


Table 1. 2012 Average Water Quality Data for LOON POND

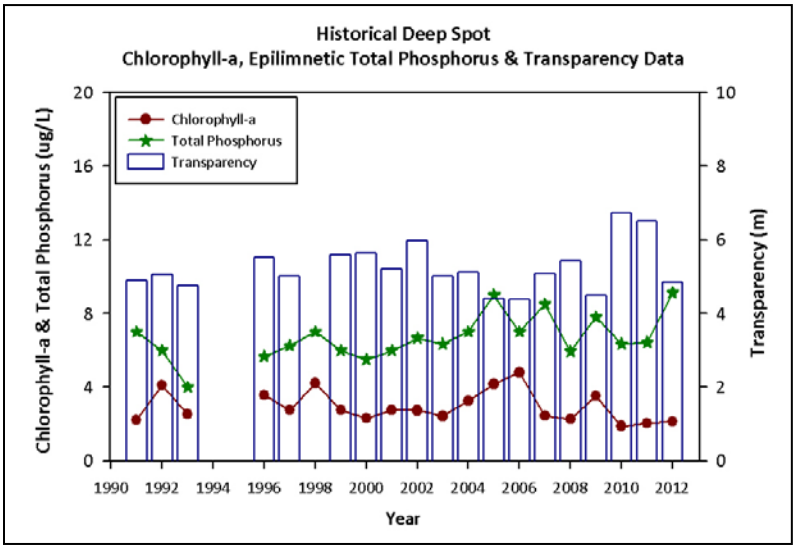
Station Name	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m		ntu	
						NVS	VS		
Bertrand Brook			44	210.0	17			1.33	6.83
Deep Epilimnion	5.20	2.12	15	86.2	9	4.85	5.20	0.67	7.15
Deep Metalimnion				87.1	9			0.86	6.75
Deep Hypolimnion				87.5	13			1.35	6.33
Gardner Cove Inlet			37	170.7	19			0.61	6.59
Outlet				87.4	7			0.74	6.87
Varney Brook			5	51.5	15			0.84	6.77

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Stable	Data not significantly increasing or decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Degrading	Data significantly increasing (worsening).



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